



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Gretchen E. Monke	Project Number J1121
Project Title How Does Aerobic Training and Body Position Affect Heart Rate Recovery after Exercise?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The rate at which heart rate returns to resting level after exercise (heart rate recovery) is a good indicator of aerobic fitness. The effect of participation on school sports teams on heart rate recovery was studied in nineteen females ages 12-13. The effect of body position on heart rate recovery was also examined.</p> <p>Methods/Materials Each subject remained quiet in a supine position for twenty minutes, and a resting heart rate was recorded. A two-minute aerobic step test was performed. The time it took for the heart rate to return to resting levels was measured. The experiment was repeated with each subject resting and recovering while seated in a chair. A Polar heart rate monitor and transmitter were used to measure heart rate.</p> <p>Results Athletes had significantly faster heart rate recovery after exercise than non-athletes, regardless of body position. Body position, however, was also a determinant of heart rate recovery time. Both athletes and non-athletes recovered faster in the supine position than the sitting position. Athletes also had significantly lower resting heart rates than non-athletes.</p> <p>Conclusions/Discussion In the current study, participation on school sports teams is associated with faster heart rate recovery among school students ages 12-13. These results are important in light of recent studies demonstrating that adults with slower heart rate recovery times have a higher incidence of mortality. Considering the problem with childhood obesity in the United States today, a heart rate recovery measurement is an inexpensive tool that could be used as an indicator of aerobic fitness by teachers and parents.</p>	
Summary Statement Measuring heart rate recovery after exercise can be an effective way to determine aerobic fitness in youth, considering heart rate recovery is significantly faster in athletes than non-athletes.	
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